

**Abstract**

A branching unit is provided for interconnecting at least three undersea optical transmission cables. The branching unit includes first, second and third ports for receiving first, second and third undersea optical transmission cables, respectively. The first and second cables each include an electrical power conductor and a plurality of first optical fibers. The third cable is electrically unpowered and includes at least one drop optical fiber and at least one add optical fiber. An electrical power conductor segment is provided for electrically coupling the conductor in the first cable received in the first port to the conductor in the second cable received in the second port. A first optical fiber segment optically couples a first of the plurality of first optical fibers in one of the first or second cables to the drop optical fiber of the third cable. A second optical fiber segment optically couples a second of the plurality of first optical fibers in one of the first and second cables to the add optical fiber of the third cable. First and second optical amplifiers are located along the first and second optical fiber segments, respectively so that the first optical amplifier provides optical gain to traffic being dropped on the drop optical fiber of the third cable and the second optical amplifier provides optical gain to traffic being added on the add optical fiber of the third cable. At least one electrically conductive path is provided for supplying electrical energy from at least one of the electrical power conductors to each of the optical amplifiers.